The Wiſdom *and* Goodneſs *of* GOD *in the* VEGETABLE CREATION.

Further conſider'd in a

SERMON

Preach'd in the

PARISH-CHURCH

OF

St. *Leonard Shoreditch*,

ON

WHITSON-TUESDAY,

May 15. 1733.

At the ANNIVERSARY LECTURE founded by Mr. *Thomas Fairchild*, late of *Hoxton*, Gardener.

By *JOHN DENNE*, D. D. *Archdeacon* of *Rocheſter*, and *Vicar* of the ſaid Pariſh.

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A PREFACE.

IT was at the requeſt of ſome Friends, to whom I have many obligations, that I undertook, after an application to ſome of my Brethren, to preach again upon a ſubject, which had at the firſt opening of this Lecture *exhauſted the little ſtore of knowledge I had gleaned up from the experiments and obſervations of others, who had been more converſant in the* Vegetable *World than myſelf. But this Plea availed little with them; their Friendſhip had given them ſo favourable an opinion of the* Sermon *I had publiſhed, that they thought it* eaſy *for me to furniſh out another, judging of my knowledge by their own experience; which teaches them, that* Vegetable *Nature is capable of affording an infinite variety of curious Obſervations. But to determine me effectually, they urged one motive of the greateſt weight with me, that I ſhould* do good *by encouraging a ſcheme then on foot, to make by a* voluntary Subſcription *ſuch an addition to Mr.* Fairchild's Legacy, *as might perpetuate his excellent Deſign, and provide ſomewhat of a recompence to* Preachers *for their trouble and expence, who ſhould be diſpos'd to come from far to put their private ſtock of* Vegetable *Riches into one common publick Fund; and thus devote it both to the* Glory *of their* Creator, *and the* Good *of their* Fellow-Creatures.

It is with this view likewiſe that I publiſh this ſecond *Eſſay on the* Wiſdom *and* Goodneſs *of* God *in the* Vegetable *Creation; hoping thereby to excite the ſame Spirit*

in others, that was in the [a] *Founder of this Lecture, who did according to his ability, when he left the following Legacy in his* Will, *dated* Feb. 21. 1728, *and proved* Oct. 13. 1729.

" Item, *I give and bequeath to the* Truſtees *of the* " *Charity Children of* HOXTON *and their* Succeſſors, " *and the* Churchwardens *of the Pariſh of St.* Leonard " Shoreditch *and their* Succeſſors, *the Sum of* twenty- " five *Pounds, to be by them placed out at* Intereſt *for* " *the payment of* twenty Shillings *annually for ever, for* " *the preaching a* Sermon *in the ſaid Church of St.* Leo- " nard Shoreditch *by the* Lecturer *of the ſaid Pariſh,* " *or ſuch* other *Perſon as the ſaid* Truſtees *and* Church- " wardens, *and their* Succeſſors *ſhall think proper, in* " *the* Afternoon *of the* Tueſday *in every* WHITSON- " Week *in each year on the ſubject following, viz.* The " wonderful Works of God in the CREATION: *or,* On " the Certainty of the *Reſurrection* of the *Dead* proved " by the certain changes of the *Animal* and *Vegetable* " parts of the *Creation.*

" *And in caſe default be made in preaching the ſaid Ser-* " *mon at the time aforeſaid, then my Will is, that the ſum* " *of* twenty-five *Pounds ſhall be forfeited to the* Church- " wardens *of the Pariſh of St.* Giles Cripplegate, Lon- " don, *to be by them and their Succeſſors placed out at in-* " *tereſt for the preaching of the ſaid annual Sermon in the* " *Pariſh-Church of St.* Giles Cripplegate, London, *on* " *the ſubject and in the manner aforeſaid, by ſuch Perſon* " *as the ſaid Churchwardens and their Succeſſors ſhall* " *think proper.*"

This Legacy, you ſee, provides but a ſlender recompence for a Preacher: and even that is likely to be leſſen'd or loſt, ſince hitherto the Truſtees *have not been able to place out the principal Money upon good ſecurity, ſo as to anſwer the* yearly *Intereſt of* twenty Shillings.

As I have begun a Preface, *it may not be improper for me to mention ſome few things in regard to the doctrine of the Sermon, which could not ſo conveniently be brought within it.*

As

[a] Mr. *Fairchild* died Oct. 10. 1729.

As all Syſtems *or* Hypotheſes *concerning the Works of* Creation *and* Providence *are only human conjectures about the time and manner, in which it has pleaſed* GOD *to exert his* Wiſdom *and* Power; *it matters little which of them are true, ſo long as they equally tend to promote his* Glory. *It is allowed by all Philoſophers at preſent, that ſuch* imaginary Agents, *as an* anima mundi, *a* Plaſtick *or* Spermatick *Nature, and the like, ought to be baniſhed out of the world. But then the queſtion is, how muſt the* Courſe *of* Nature *be carried on? The terms* [a] Nature, *the* Powers, *or the* Courſe *of it, can in their true meaning ſignify no more, than that things do ordinarily and frequently come to paſs in the* material *World. But that all the* Phænomena *therein are* mechanical *Effects of* Matter *and* Motion *is plainly falſe, nay impoſſible, if there be any truth in the reaſonings or diſcoveries of* modern Philoſophy. *Experience indeed diſcovers to us ſeveral* [b] active Principles, *which have the appearance of* efficient Cauſes: *and the proper* [c] *buſineſs of natural Philoſophy, according to Sir* Iſaac Newton, *is to fix the number of theſe* Principles, *to find out without feigning* Hypotheſes *their determinate Powers, to calculate the meaſure and extent of their various and contrary Forces, and to ſhew what are the laws, or forms of proceeding, which Corporeal Things punctually and religiouſly keep to by means of theſe* Principles. *But when this is done, we may be, nay, 'tis certain we are at as great a loſs as ever, to find out whence theſe* very Principles [d] *derive their activity, or to account philoſophically*

[a] *Wollaſton's* Religion of Nature, p. 86. *Clarke* and *Leibnitz's* Papers, p. 351, 353.

[b] *Newton's* Opticks, p. 350, 351, 375—377.

[c] *Ditto*, p. 344, 377. *Principia*, Præfat. and p. 484. *Pemberton's* Introd. §. 15. *Wollaſton*, p. 81.

[d] By the *Terms* of *gravitating, attracting, repelling*, and the *like*, Philoſophers do not now mean to ſignify any qualities that have a real exiſtence by way of *inhering* in any ſubject, or the *efficient Cauſes* of bodies tending towards, or flying from each other: but they are mere *abſtract* names to expreſs certain general, extrinſic, and relative effects produced on matter by *foreign* and unknown *Agents*.

cally for the efficient Cauſes *of the properties or influences they ſeem to have. One thing indeed is certain to a demonſtration, that tho' we can go on* [c] *in the "way of* Analy- "ſis *from Compounds to Ingredients, and from Motions to "Forces producing them, and in general from Effects to "their Cauſes, and from particular Cauſes to more gene- "ral," yet all theſe intermediate ſteps muſt carry us ſooner or later* [f] *to* ONE ſupreme, *independent, and infinitely perfect* BEING, *from whom their reſpective powers originally flow, and on whoſe pleaſure the exerciſe of them continually depends. But what is more, theſe* active Principles, (*if we could fix their number, and aſcertain how the Properties and Actions of corporeal things may follow from them*) *are nevertheleſs ſo far from being mechanical in their nature or operation; that if we form a judgment of them from reaſon and experience, we ſhall be inclin'd to think, that they cannot be the* [g] *reſult of any motion or properties originally impreſs'd upon, or ſuperadded to matter, nor can now be left to themſelves to act by virtue of any* original powers *given by* GOD: *but muſt be owing* [h] *to an* immaterial *and* inviſible CAUSE, *whoſe influence does at all times mix itſelf with matter, and operate immediately upon it in a regular and uniform manner, tho' by forces very different, and contrary to each other, thereby preſerving the* order, *and* beauty *of the World. And what is this* CAUSE? *but the* [i] preſerving *and* governing *Power of* GOD *himſelf exerting its* [k] *inceſſant dominion and influence thro' the whole material Creation,*

In other words, they ſignify the *Phænomena* themſelves, and the *Laws* of ſuch tendencies, averſions, or influences, as are diſcover'd by experience; whatever be, or be not the Cauſe of them. *Clarke*'s 3d Def. of a letter to *Dodwell*, p. 5. 70, 77. His Papers to *Leibnitz*, p. 357. *Newton*'s Opticks, p. 350, 375.

[c] *Ditto*, p. 380.

[f] *Ditto*, p. 344, 379. *Wollaſton*, p. 78.

[g] *Clarke*'s B. Lect. Vol. II. p. 21. *Ditto*, 3d Def. of a lett. to *Dodwell*, p. 53, 70, 75, 79.

[h] *Woolaſton*, p. 79, 81. *Newton's* Opt. p. 344, 373. *Clarke*'s Def. of a lett. to *Dodwell*, p. 13. 3d Def. p. 71, 80.

[i] *Ditto*, B. Lect, Vol. II. p. 22. *Bentley* p. 127. *Woodward*'s Nat. Hiſt. p. 52. *Newton*'s Opt. p. 379.

[k] *Watt*'s Philoſ. Eſſ. p. 252, 203.

Creation, and producing an infinite variety of effects, either immediately *by itſelf, or* mediately, *by the miniſtry of ſubordinate and intelligent agents. A Scheme, that is moſt agreeable to all diſcoveries in natural Philoſophy, or* revelation, *and gives us ſo juſt and exalted an Idea of* Providence, *that there can be no reaſon to be fond of any* Hypotheſis, *which by reſolving all* phænomena *into* mechaniſm, *or into the neceſſary, unguided motions of matter, or into the* abſolute efficiency *of* ſecond Cauſes, *repreſents* GOD *to be little more, ever ſince the* firſt Creation *of things than an* [d] *unemployed* Spectator *of their various effects, never exerciſing his power unleſs now and then in an extraordinary and miraculous affair; as if the ſole* [e] Happineſs *of the* Deity *conſiſted in* indolence *and* inactivity: *and the* ordering *the Univerſe was a* troubleſome *employment, unworthy of, or beneath the* dignity *of an infinitely* perfect *Being. But the words of Dr.* Clarke *are ſo expreſſive of my thoughts, and may give ſuch a weight to my opinion, that I can't forbear tranſcribing them.* [f] " *Nor is it leſs ſurprizing to find* " *this aſſertion again repeated, that after the firſt Crea-* " *tion of things,* the continuation of the motions of the " heavenly Bodies, *and the* formation of Plants and " Animals *&c.* is as mechanical as the motions of a " Clock. *Whoever entertains this opinion is (I think) o-* " *bliged in reaſon to be able to explain* particularly, *by* " what laws of Mechaniſm *the* Planets *and* Comets *can* " *continue to move in the* Orbs *they do; and by* what Me- " chanical Laws *both* Plants *and* Animals *are formed,* " *which, I am fully perſuaded is as impoſſible to make out,* " *as it would be to ſhew how the* World itſelf *could have* " *been at firſt formed by* mere Mechaniſm, *without any* " intelligent *and* active Cauſe. *That things could not be* " at firſt produced *by* Mechaniſm *is expreſly allowed:* " *And when this is once granted; why, after that, ſo* " *great concern ſhould be ſhown to exclude* GOD's actual " *government of the world, and to allow his Providence*

" *to*

[d] *Cudworth*, p. 148. [e] *Ditto*, p. 149, &c.
[f] *Clarke*'s and *Leibnitz* Papers, p. 364.

" *to* act *no further than barely in* concurring (*as the* " *Phraſe is*) *to let* all things *do only what they would do* " *of themſelves by* mere Mechaniſm; *and why it ſhould* " *be thought that* GOD *is under any obligation or confine-* " *ment either in* nature *or* wiſdom, *never to bring about* " *any thing in the Univerſe, but what is poſſible for a* cor- " poreal Machine *to accompliſh by* mere mechanick laws " *after it is once ſet a going; I can no way conceive.* E- " ſpecially, [f] *ſince it has been diſcovered and clearly proved* " *by thoſe, who have made the* greateſt *and* trueſt *im-* " *provements in natural Knowledge, that all ſecond Cauſes* " *(excepting Men and Angels which are free Agents) all* " other *ſecond Cauſes (as they are uſually ſtiled,) are really* " *no Cauſes, and have no efficiency at all, but are* mere " Inſtruments, *by which* GOD *perpetually acts, and is* " *himſelf the conſtant (if not only) Agent, in what we vul-* " *garly call the* Courſe of Nature."

From theſe acknowledg'd principles of modern *Philoſophy, I ſhall only draw theſe particular Concluſions; that ſince it is highly probable from the diſcoveries made by* Microſcopes, *that all the* Seeds *of* Vegetables *are ſo many* Seminal Plants, *and that theſe* Seminal Plants *are* organized *Bodies, which cannot poſſibly be* [g] *ſtruck and faſhioned by matter and motion, nor by any of thoſe* active Principles *above mention'd, acoording to the common Laws, whereby our Experience hitherto ſhews us that they act, (and to go be-yond it is not Philoſophy): Why ſhould it be thought a* thing incredible, *that* GOD *ſhould* [h] finiſh *this work of the* third *day in the* Week *of* Creation *together with the reſt? Why is* [i] *it* " *prodigious and aſtoniſhing beyond reaſonable belief*" *to produce all the* Seeds *of* Vegetables *at* once *completely form'd in miniature, tho' more in* number, *than the* Sand *on the Sea-ſhore? ſince this effect muſt be equally eaſy to* Almighty *power, as to bring into being all the Particles of* Matter, *which conſtitute all corporeal things, however dif-ferent in their Nature, or texture, that ever were or ſhall be in the*

[f] *Ditto*, Sermons, Vol. I. p. 290.
[g] *Wollaſton*, p. 91. *Clarke's* 2d Def. of a lett. to *Dodwell*, p. 22.
[h] *Watts's* Eſſ. p. 202. [i] *Ditto*, p. 308, 310.

the World? The infinite [k] divisibility *of matter not only reconciles us to this Opinion, but adds to its credibility. Besides* [l] *"if any thing can be said to be easier, or harder in "this sort of Almighty work, we may suppose it a more glorious "difficulty for* GOD" *to create with exquisite artifice* organized *particles of matter, than such as are absolutely* rude. *But further if this one thing be granted, that it is possible for the* Seeds *of* Vegetables *to be thus created, we can then account philosophically and by an* analogy *in nature* [m] *for their nourishment and growth, with every other Change, in an orderly tho' infinite succession of them, from those obvious Laws of Matter and Motion with which we are acquainted, under the influence of the very same* active Principles; *which extend in common to all parts of the material Creation, whether animate, or inanimate: and are the visible Means,* [n] *whereby* GOD *preserves and produces all that Order and Beauty we see in the World. Nature will thus appear* [o] *very* simple, *and perfectly* conformable *to it self, thro' out the Universe, and this is the surest Criterion of Truth in any* Hypothesis.

Upon the whole, this Hypothesis *seems to me at least very* rational *and* philosophical, *since it is grounded on experiments, and an* analogy *in* nature, [p] *which is the best way of arguing the thing admits of. It cannot but be a more* unphilosophical *solution to assert, without any experiments, or observa-*

[k] The *incomprehensible* Idea of *infinite* can be no just Objection to our Arguings on this Subject, if they be in themselves *demonstrative* or *probable*. Things are and must be *infinite*, whether or no we *apprehend* them; and there are many *Demonstrations*, even in *abstract Mathematicks* themselves, which no man who understands them, can in the least doubt of the *certainty* of; which yet are attended with difficult consequences, that cannot be perfectly cleared up; as for instance, those concerning the *infinite Divisibility of Quantity, and the Eternity and Immensity of* GOD. Our Reason is able to *apprehend* clearly the *demonstration* of the existence of these things, tho' the imagination is not able to *comprehend* the Ideas of the things themselves. *Watts*, Ess. p. 276, 308. *Clarke*'s 3d Def. of lett. to *Dodwell*, p. 80, &c.

[l] *Watts*, p. 207.
[m] *Ditto*, p. 212.
[n] *Newton*'s Opt. p. 375.
[o] *Ditto*, p. 372.
[p] *Ditto*, p. 380.

observations to juſtify the aſſertions, that [q] GOD "*contrived the Models of every ſpecies in his own original Idea, and appointed Under-Agents to* copy *them*; (*which in ſtrict propriety of expreſſion is to* create *individuals by moulding, and forming organized Bodies.*) "*That he granted a* divine Patent, *or gave* verbal Orders, *or* ſtanding Laws *to each Creature* (*tho'* unintelligent) *for the ſole production of its likeneſs, and to be* fruitful *and* multiply *to all future generations*; *and* "*that he has ſuperadded to the Vegetable World ſome general, but unknown law, of motion, differing from all others in the Courſe of Nature, from whence all* Vegetables *may as well take their Origin, as derive the peculiar ſpring of their Vegetation*; *An* Hypotheſis, *which differs very little in my Idea* [r] *from the exploded doctrines of* Plaſtick *and* Spermatick *Natures, or* occult *Qualities.*

But I forbear to conteſt any further theſe ſpeculative Points, ſince the worthy Perſon, who thus differs in judgment from me, has (*I believe*) *equally at heart the Glory of* GOD. *Beſides, it is always the duty of good Men not to be* dogmatical, *much leſs ſo* uncharitably zealous *in defenſe of their own conceits, as to* think more highly *of themſelves than* they ought to think; *and it would be unpardonable in them to* abuſe *or even* deſpiſe *others. Wherefore craving the like favour for my ſelf, I ſubmit the following diſcourſe to the judgment of the Publick, after having taken care to ſupport what I have ſaid in it by good Evidence and Authority.*

[q] *Watts* Eſſ. p. 197, 198, 201, 203, 204, 205, 311.
[r] *Cudworth*, p. 147, 151, 154, &c.

GEN.

GEN. i. 11, 12, 13.

11 *And God ſaid, Let the earth bring forth graſs, the herb yielding ſeed, and the fruit-tree yielding fruit after his kind, whoſe ſeed is in itſelf upon the earth: and it was ſo.*

12 *And the earth brought forth graſs, and herb yielding ſeed after his kind, and the tree yielding fruit, whoſe ſeed was in itſelf, after his kind: and God ſaw that it was good.*

13 *And the evening and the morning were the third day.*

IT is one convincing proof of the truth and wiſdom of *Moſes*, that his *Narrative* of the *Creation* is clear, particular, and full, as well as different from what he could have [a] learn'd in *Egypt* amidſt the uncertainties of *Tradition*, the fables of *Poets*, or, what was much the ſame, the romances of *Philoſophers*; nay, even hence (without appealing to the authority of his *Miracles*) there is reaſon

[a] As the Hiſtory of *Moſes* is acknowledged to be (excepting *Job*) the moſt antient book extant, and as ſuch was in great eſteem among the *Heathens*; ſo there is nothing in their fragments relating to the *Creation* of the *World* worth the notice of a wiſe and learned man,

ſon to conclude he wrote it under the direction of the ſame *Spirit*, whoſe *Word* firſt brought this univerſe out of nothing; and then from a *Chaos* of matter, *without form* or order, erected gradually one complete Fabrick, in which (tho' it conſiſt of an infinite variety of parts) there is the moſt admirable harmony, beauty, and uſefulneſs.

But if this concluſion ſhould be thought too weak, it will gather ſtrength from obſerving, that his account is not only free from the errors of *fancy*, *fable*, or *ſcience falſly ſo called:* but will ſtand the teſt, if it be now examin'd, and compar'd with all the ſurpriſing diſcoveries that have been made in the works of nature, or in the powers of *matter* and *motion*, by the labours and ſagacity of the ableſt Philoſophers; whoſe reaſonings and experience end in confirming [a] the ſame plain truth, with which *Moſes* begins his hiſtory, that GOD *created the* heaven *and the* earth, *and all that in them is.* Beſides, his very [b] deſcription of the work is as

unleſs he can look upon their *Opinions* to be a corroborating evidence to the *Moſaic* account, when he has been at great pains to ſtrike a few ſparks of *light* out of the *darkneſs*, wherewith fancy, fable and philoſophy *falſely ſo called*, did in proceſs of time cover plain natural truths, matters of fact, or original Revelations. In proof of this I appeal to what has been remark'd and collected on the ſubject in Biſhop *Cumberland*'s Sanchoniatho, Biſhop *Stillingfleet*'s Orig. Sacræ, Mr. *Shuckford*'s Pref. to the 1ſt Vol. of *his* ſacred and profane Hiſtory, or in Dr. *Cudworth*'s Intellectual Syſtem, which is an invaluable treaſure of the *Philoſophy* among the *Ancients:* and what the *wiſdom* of *Egypt* in particular was may be ſeen *pag.* 308, *&c.* But little truth can we expect among the *Heathens*, if we conſider, that for many ages they had neither *Chronology*, nor *Hiſtory*, nor *Philoſophy*, but ſuch as was mixed with *poetical* fancies and fables. *Newton*'s Chronol. *p.* 44, 45. *Bentley*'s B. Lect. *p.* 115.

[a] The *Reader* will find it worth his while to look into Sir *Iſaac Newton*'s thoughts on this ſubject in his *Opticks.* 2d Edit. 8*vo.* *p.* 375, 378.

[b] The majeſtick ſimplicity of *Moſes*'s expreſſions is admir'd by a *Pagan* writer on *ſublime* eloquence: Ταύτῃ καὶ ὁ τῶν Ἰουδαίων Θεσμοθέτης, ὈΥΧ· ὁ ΤΥΧΩΝ ἀνὴρ· ἐπειδὴ τοῦ Θείου δύναμιν κατὰ τὴν ΑΞΙΑΝ ἐχώρησε, κἀξέφηνεν· "Εἶπεν ὁ Θεός·" Τί; "γενέσθω φῶς, καὶ ἐγένετο· γενέσθω γῆ, καὶ ἐγένετο. *Dion. Longinus*, §. 9. And a *modern*

as just and sublime, as it could have been, if we suppose him inspir'd to convey the clearest Idea men can have of the majesty and perfection of almighty power in the *supreme cause* of all things; as that his *word* flies in a moment thro'out infinite space, and produces therein, *according to the good pleasure of his will*, all possible variety of beings. [a] He *speaks*, and *it is done*: he *commands*, and it *stands fast*, till the bonds of union are dissolved by the *breath of his mouth*.

The *Mosaic* History of the *Creation* would indeed in every part of it open a large, and delightful field of contemplation to minds philosophically and religiously dispos'd. Nay, some who have thoroughly studied the Book of Nature have profess'd it very reasonable to believe, that besides preserving true Religion and Virtue in an idolatrous and wicked world, (which was the principal Design of the sacred Writings) there are providentially treasur'd up [b] such hints and notices, as will help and strengthen the reasonings of a Philosopher about *natural*, as well as *moral* Truths: or at least, that after all his conjectures, or experience, there will appear in many places so manifest a resemblance, and exact agreement with modern improvements, as to evince, that [c] *Moses* often used a *philosophical* propriety of expression in his *history*, and that whoever recedes from

modern writer, Mr. *Addison*, who had as fine a Taste as any man of the beauties of *antient* eloquence, and Poetry, justifies this *Observation*, and adds to it, that *there* are *many other Passages in Scripture, which rise up to the same majesty, where this subject is touched upon*; and without *assistances* from Heathen *Writers*, who are strangers to *the Wonders of Creation*. Spectat. N°. 389.

[a] *Psalm* xxxiii. 6, 9. 2 *Esdr*. vi. 43.

[b] *Burnet*'s Theory, *Fol*. 1691. p. 4, 5, 62, 63. *Woodward*'s Nat. Hist. the *Preface*, and p. 245, 276. *Nieuentyt*'s Rel. Philos. *Preface*. §. 31, 33. *Whiston*'s Astron. Princip. of Rel. *p*. 139. Dr. *Clarke*'s Serm. Vol. I. p. 289.

[c] *Philo*'s Character of *Moses* in this particular is very remarkable, Μωσῆς δὲ καὶ φιλοσοφίας ἐπ' αὐτὴν φθάσας ἀκρότητα, καὶ χρησμοῖς τὰ πολλὰ, καὶ συνεκτικώτατα τῶν τῆς φύσεως ἀναδιδαχθεὶς, ἔγνω. De mundi opif. p. 2.

from his account of the *Creation* or *Deluge*, recedes from *Nature*, and matter of *Fact*.

My Text is, I think, a remarkable Inſtance of this kind, and I ſhall quote no more; believing that moſt of you, who make it your buſineſs, or your pleaſure, to converſe with the vegetable World, would have me to confine my diſcourſe on this occaſion to the Subject it affords: for if you conceive the full import of the Words, and then look back by imagination to the ſcene *Moſes* deſcribes, you will ſee at one view all *kinds* of *Herbs*, *Plants*, and *Trees*, that are to be found, not in any particular Country, or Climate, but over the face of the whole Earth, ſpringing up together into being, arrayed in all their glory, and growing within the compaſs of *one* day unto perfection; and even then ſtored with *Seeds* ſufficient to produce their *like* thro' all ſucceſſive ages of the world.

The very thing itſelf ſpeaks the *wiſdom*, *power*, and *goodneſs* of that one ſelf-exiſtent, ſupreme, and perfect Being, whom *Moſes* calls GOD: however to do juſtice to the *Founder* of this *Lecture*, and to anſwer, as far as I am able, the expectations of my audience, I ſhall point out ſome undeniable Marks of divine *wiſdom* and *power*. *Firſt* (1) in *creating*, and *ſecondly* (2) in *preſerving* the *Vegetable* World: and *thirdly* (3) I ſhall ſhew, that every thing therein is in reality, what *Moſes* aſſures us, GOD *ſaw* it to be GOOD.

I. As to the *firſt* Head. That the *whole* World, as well as this *part* of it, could not be the effect of *blind chance*, nor of any *abſolute neceſſity* in it's nature, nor have exiſted from *Eternity* by an infinite ſeries of *cauſes* and effects, without any firſt original, and independent cauſe; but muſt proceed from the Will, and operation of a *Being* neceſſarily exiſtent, but perfectly free, who has herein exerted infinite *wiſdom* and *power*, is a truth that has been made ſo plain, even to demonſtration,

tion, upon principles of the beſt and wiſeſt *Philoſophy*[a], that I ſhall ſay nothing upon theſe *general* topicks, nor upon the *particular* Structure of *Vegetables*; which is admirable for a diverſity, and curioſity of workmanſhip, for a juſt proportion and connexion of parts, and for a conſpiring harmony, and fitneſs in all of them to anſwer the ends and purpoſes of their creation; becauſe I have ſpoken my thoughts fully on this ſubject in a Sermon, that was preach'd[b] and publiſh'd at the opening of this *Lecture*.

The Queſtion I ſhall now chuſe to treat of is this, whether ALL SEEDS of *Graſs*, *Herbs*, and *Trees* were brought at once by the *Word* of *God* into being upon the *third* day of the *Moſaic* Creation: and then wrapped up and joyn'd ſo cloſely together as not to be ſeparated and unfolded, till their *Creator* at times predetermin'd in the courſe of his Providence ſhould put them into ſuch State and Circumſtances, as that theſe Cabinets of wonderful Workmanſhip ſhould be open'd, impregnated with life, and grow to viſible perfection according to certain, uniform and fixed laws, to which he has been pleaſed to ſubject matter and motion in *Vegetables*. This ſeems to be the opinion of the ſacred Hiſtorian, for he could ſcarce chuſe Words more expreſſive of it, when he tells us, that the Earth *brought forth graſs, and herb yielding Seed*, and *the Fruit-Tree yielding fruit*, whoſe SEED *was in* ITSELF *after his Kind*.

But

[a] Thoſe who want any ſatisfaction as to theſe points will find an entire one in the reaſonings of Dr. *Clarke* and Dr. *Bentley* in their *Boyle*'s Lectures, in Dr. *Cudworth*'s Intellect. Syſtem, Mr. *Wollaſton*'s Relig. of Nature, and Sir *Iſaac Newton*'s Opticks, *p.* 344. 375---377. 379. who demonſtrates the ſame Truths in the *general Scholium* to his *Principia*; and Profeſſor *Cotes* after doing the like in his excellent *Preface* declares, CAECUM *eſſe oportet, qui ex optimis & ſapientiſſimis rerum ſtructuris non ſtatim videat* Fabricatoris omnipotentis *infinitam* Sapientiam & bonitatem, INSANUM, *qui profiteri* nolit.

[b] *May* 19. 1730.

But if we do not look upon this, as an inſpir'd truth, yet the conjectures of ſome *antient* [a] Philoſophers ſupported by the real diſcoveries of the *moderns* [b] have ſet upon it all the marks of human probability; for, where our *Eyes* fail us, if we call in the help of Art, and take the Microſcope, we ſhall diſcern, that the *Seeds* of many *Vegetables* are *real* and *perfect* Plants in *Embryo*, having in them the *original Stamina* of that very *Body*, which afterwards ſtrikes down it's roots into the Earth, ſhoots into a perpendicular Stem, ſpreads forth its branches, and grows up unto maturity, and perfection. In many *Seeds*, I ſay, all this appears in miniature; but then as it is *thro' a glaſs darkly*, we muſt wait for clearer evidence, till GOD removes us into another world, where probably all *Imperfection* ſhall be *done away*, and our very ſenſes ſhall be ſo glorified, as to ſee the inmoſt Conſtitution of things: However, from what we *now* ſee, and know *in part*, we may conclude by an [c] *analogy* of reaſoning, (which is the beſt on the works of Nature and Providence) that all *Vegetables* are in this reſpect alike, and have within them their proper *Seeds*. By which means it is, that the ſeveral *Species* of them are kept diſtinct without confuſion thro' a diverſified regularity: and the *Individuals* of each *Tribe* or *Family*, however numerous, do ſtill preſerve as marvellous a reſemblance in the texture of their parts, as if they were all made together, and caſt in one, and the ſame Mould; they thrive and grow by the ſame kind of Nouriſhment, and bring forth the ſame kind of flowers and fruit.

More-

[a] *Philo. Jud.* de *Opif. mundi*, p. 8, 9. *Diog. Laert.* in *Zeno*, p. 199. *Stobæi* Eclog. Phyſ. l. 1. c. 14, 15 *Cic.* de *Nat. Deor.* l. 2. c. 22, 32. *Senec.* Nat. Quæſt. l. 3. c. 29. *Lucret.* l. 1. v. 150, &c. 222. l. 2. v. 61, 201. [b] *Miſcell. Cur.* Vol. I. p. 145, &c. *Bentley*, p. 159, &c. *Nieuentyt*, Cont. XXIII. §. 3, &c. *Woollaſton*'s Relig. Nat. p. 91. *Hales*'s Statick. Vol. 1. *Pref.* p. 2. B. 321, 348.

[c] How far *Analogy* is the great Rule of Probability in things which ſenſe cannot diſcover, may be ſeen in *Locke*'s Eſſay, B. IV. Chap. 16. §. 12. *Wollaſton*'s Rel. of Nat. *p.* 81. and *Pemberton*'s View, *p.* 25.

Moreover, ſince the largeſt Trees ſpring from *Seeds* no bigger, and often leſs than thoſe of many Shrubs and Herbs, one cannot better account [a] for the different growth, dimenſion and ſtature of each *Species*, or *individual*, than by ſuppoſing their *Original Stamina* were not made capable of like extenſion. But what is more obſervable, and experience puts paſt diſpute is this [b], that there is no ſuch thing as *equivocal* Generation, either in the *Animal*, or *Vegetable* World, and that the *Sun* with all the *Elements*, in conjunction with the skill of *Man*, or the powers of *Mechaniſm*, as exerciſed in the courſe of Nature, have never yet been able to produce any *new* Species, nor has any *old* one been loſt, altho' *Individuals* may have been improved or varied by an artificial bettering of Soils; or what oftener happens, be hurt and blemiſhed by unnatural motions, or mixtures, whence it becomes highly probable, that GOD created together all the *Seeds* of *Vegetables*, that ever were, or ſhall be in the world, and thereby [c] determin'd their *Number* as well as *Kind*, unto the very end of it. To ſtrengthen this it may be added, that in every *Species* there is a wonderful proviſion made, not for creating new Seed, but for conveying and depoſiting what they have already within themſelves, in a place moſt ſafe and proper for keeping and nouriſhing and cheriſhing it, till it is alive, and can ſhift for itſelf. But to ſum up all, ſince [d] *organized* Bodies (as all *Vegetables* have) muſt be faſhion'd as it were at one Stroke unto

[a] *Bentley*, p. 141. *Clarke*'s Boyle's Lect. Vol. II. p 329.

[b] *Bentley*, p. 113, 145, 151, 182. *Clarke* ditto, Vol. I. p. 95. *Wollaſton*, p. 91.

[c] *Ditto*, p. 84, 90. What more *natural* Cauſe can be aſſign'd for that ſtrict numerical proportion, which is kept up between Males and Females among *Animals*, than that God form'd the *Seeds* of *all* together at the firſt in this proportion. This therefore is moſt likely to be true of *Vegetables*, which reſemble *animals* in many reſpects. *Motte*'s Abridgment of the Philoſoph. Tranſact. Vol. II. p. 231. *Cudworth*, p. 690.

[d] *Bentley*, p. 132. *Cheyne*'s Philoſ. Princip. p. 131. *Wollaſton*, p. 91. *Cudworth*, p. 163.

to perfection, and cannot be patch'd up by piecemeal, or come together by any gradual natural progreſs; is it not very probable, according to the obvious ſenſe of the *Moſaic* Hiſtory, that all *Vegetables* [e] are parts of one coæval Syſtem, and were form'd in embryo in their reſpective *Seeds* by the almighty Creator on the *third day*, who may thus in ſtricteſt propriety be ſaid to have *given* [f] to *every ſeed his own body*, in perfect miniature?

But if it ſhould be ask'd, *how may this thing be?* I might anſwer by another queſtion, how can it be otherwiſe, according to any known qualities of matter and motion? Behold, ſays [g] *Job*, GOD *is great* and *we know him not*; he is, and muſt be alike *incomprehenſible* in his *Works*, as in his *Nature*, and the moſt enlarged underſtanding cannot *find out* the leaſt and meaneſt of them unto *perfection*. Our Ignorance herein is uniform, and the ſame on every ſubject; ſo that the difficulty of conceiving how any thing may be, which is not impoſſible, can be no juſt objection to the truth of matters of fact, when diſcover'd by experience, or revelation: Nor is that *difficulty* ſo great in the fact now before us upon this hypotheſis as any other. Sir *Iſaac Newton*, who ſaw as far as any man into the powers of GOD and *Mechaniſm*, lays it down for the moſt probable truth [h] that "GOD in the beginning form'd matter in ſolid, maſſy, hard, impenetrable, moveable "Particles of ſuch ſizes and figures, and with ſuch "other properties, as moſt conduc'd to the end "for which he form'd them. And theſe primitive "particles are ſo very hard, as never to wear, or "break in pieces; no ordinary power being able to "divide what GOD himſelf made one in the firſt "Creation. While the particles continue entire, they "may compoſe bodies of one and the ſame nature and "texture in all ages; and therefore that nature may "be

[e] *Millar*'s Dict. under *Seed*. *Miſcell. Curioſ.* Vol. I. p. 145.
[f] 1 *Cor.* xv. 38. [g] *Job* xxxvi. 26. xxxviii. 5.
[h] *Newton*'s Opticks, p. 375, 377. *Stobæi* Eclog. Phyſic. cap. xiv.

" be lasting, the changes of corporeal things are to be " placed only in the various separations, and new af- " sociations of these permanent Particles." If this be probable, why is it less so to suppose, that GOD did form together the *Seeds* of all future *Vegetables*, and preserves [i] them from corruption and dissolution, till his providence shall bring them forth into a visible state of life at proper times and seasons, according to those general Laws, by which he is pleased to govern matter and motion in what we call the *Course* of *Nature*? The numberless multitude of *Seeds*, however astonishing, ought to be no objection; since it is equally easy to produce them at once, as all the primigenial Particles of matter which constitute all bodies that ever were or shall be in the world. The Microscope discovers to us in the *Seed* the future *Vegetable* complete in all its parts, and helps us to see millions of perfect *Animals*, which at their largest growth are not discernible by the naked Eye. But Reason will pursue these discoveries thro' an infinite divisibility of matter, and demonstrate to us [k], that every Particle within these *Vegetables* or *Animals* is made up of more real parts, than we can count, or apprehend to be in the whole Universe: and therefore each Individual is capable of containing as many *seeds* within itself, as can be requisite to propagate its species thro' all generations. This is indeed a prodigious scheme of things: but consider what a Being GOD is, and that all his works are of a piece, and bear upon them a distinguishing stamp of infinite wisdom and power [l].

How-

[i] When *Seeds* are born, the *Earth* is so form'd, as to be a safe repository, as well as natural nurse to them. *Millar*'s Dict. under *Seed*.

[k] Dr. *Nieuwentyt*'s 25th Contemplation on these Subjects will be very pleasing to the *Religious Philosopher*: and if he have both inclination and skill to dive farther into the depths of divine wisdom and power, he may consult *Newton*'s *Opticks*, p. 327, 342. *Clarke*'s Notes on *Rohault*, l. 1. c. 9. *Wollaston*, p. 80, 81, 96. *Locke*'s Essay, B. 2. c. 23. §. 23, 26.

[l] *Isa.* xxxvii. 7.

However the time or manner of creating *Vegetables* are points of no great conſequence to the main ſubject of this diſcourſe; it is enough for me, that they are in being, and could never come into it, unleſs GOD be giving daily proofs of that *Creative* Power, which we according to reaſon and Scripture-hiſtory ſuppoſe him to have exerciſed but once, in the beginning of this world; it being demonſtrable that *matter* and *motion*, however influenc'd by any *active Principles* hitherto diſcover'd, can never be ſufficient of themſelves[m] to produce *organized* Bodies, and ſuch are all the *Seeds* of plants and animals, whereby they convey to other individuals a ſpecific likeneſs. Nay, tho' a tolerable account could be given how *Animals* and *Vegetables* do live and grow, yet their life and growth muſt be accounted for from ſuch *active* and *contrary* Principles, as cannot be the[n] effects of mere matter and motion, however modify'd, compounded, or directed. Theſe *Principles*, and their *Effects*, muſt at leaſt ſpeak the will, deſign, and power of a firſt and ſupreme Mover in their œconomy and diſpoſition, even tho' it be poſſible for them afterwards to perform what we ſee regularly done in the *courſe* of *nature*, either by any delegated powers, or by obſerving certain laws originally, and inviolably eſtabliſhed for their future conduct; which, in ſtrict reaſoning, and a philoſophical propriety of expreſſion, is to make them intelligent Agents. But the truth ſeems to be (without any figure of ſpeech) that theſe *active Principles* are very diſproportionate, and unequal to their pretended effects; and we know ſo little, after all our pains, and numerous experiments to analyſe Nature, of the true ſprings which carry on its various movements, that the moſt ſagacious and penetrating Philoſopher muſt recur to the exploded doctrine of *occult* qualities, or take up with

[m] *Vid.* pag. 8. *Clarke's* B. Lect. Vol. I. p. 94, 95.

[n] *Newton's* Opticks, Q. 1. 31. p. 375, &c.

with *romantic* conjectures, unleſs he will religiouſly account theſe *moveable Powers*, or *nominal* Cauſes, to be no more than *means*, *inſtruments*, or rather *real* effects of GOD's ſuperintendent and active *Providence*[o]; which thus concurs either by its own immediate influence, or by intelligent Agents, who are his *Miniſters*, in regulating the various and innumerable combinations of *Matter* and *Motion* by certain general Laws, ſo as to produce that aſtoniſhing circulation of intermediate cauſes and effects, which is neceſſary to preſerve not only the *Vegetable*, but all other parts of the univerſe, in a wonderful Order and Beauty. But the particular proof of this is the buſineſs

II. Of my *ſecond* head. And without ſuch a *Providence* it is not poſſible from all the known principles of philoſophy to tell how the SEED *ſpringeth*, *groweth up*, and *bringeth forth fruit of itſelf*. For at what time ſoever we ſuppoſe *ſeeds* to be formed, yet as they have within them the entire *ſtamina* of that individual herb, plant, or tree they afterwards produce: ſo the great myſtery, or miracle of Vegetation, will be juſt the ſame, as if *Vegetables* had originally, as *Moſes* ſeems to intimate, all their future SEEDS, or *ſeminal Plants*, *within themſelves*, and only waited that *due ſeaſon*, which was predetermin'd by their *Creator* for the *yielding* of them up, and forming thoſe peculiar Bodies, into which every reſpective *Seed* will unfold itſelf by *growth*. But in order to theſe purpoſes, how elaborate and, in fact, aſtoniſhing is the [p] apparatus, that is always made by

[o] *Clarke*'s B. Lect. Vol. II. p. 22. Sermons, Vol. I. p. 290.

[p] The Curious will find pleaſure and improvement in reading the Opinions of thoſe *Virtuoſi*, who have taken pains to diſcover the *Mechaniſm* and *Uſes* of all the parts that make up the *bloom* and *flowers* of *Vegetables*. *Hales*, Vol. I. p. 355. *Motte*'s Abridgment of the Philoſoph. Tranſact. Vol. II. p. 293, &c. But theſe Opinions are all collected in the Dictionaries of Mr. *Chambres* and Mr. *Millar*, under *Plants*, *Flowers*, and *Generation*.

by the God of *Nature*, or his *Providence*. A common eye may be ſo ſtruck with the gay, beautiful, and ornamental attire of blooming and flowering *Vegetables*, as to look for nothing more, (and indeed theſe are lovely and inimitably curious): but a Philoſopher, who pries into the ſecrets of nature, will ſoon diſcover, that God has *created* even them *Male* and *Female*, and that he has ſo wiſely and *wonderfully made* them, as that the very *duſt* they ſhed, which was once thought an *excrement*, is in truth a *congeries* of *ſeminal plants*; and that their *bloom* and *flowers*, tho' of infinite variety, are yet, *in all their glory*, but means to *propagate* their *kind*, to bring proper nouriſhment to the *infant-fruit*, to protect and cheriſh the *ſeed* it has within, and to convey the firſt enlivening principle to the *Fœtus* wherewith it is impregnated. Nor do theſe ever fade, or fall away and deſert their charge, till they have done all that is requiſite to give its conſtituent particles [q] a juſt degree of cohæſion, to provide ſafe repoſitories, and proper coverings, and [r] to ſtore them well with *oil* and *ſulphur*, which will preſerve it all winter againſt the injuries of piercing cold; and be likewiſe very active for its good, when the genial warmth of the *Sun*, or *artificial Fires*, ſhall join their powers to ferment it into Life. But when it is alive; how and whence does it receive that prodigious [s] force, which is neceſſary to open its ſtrong holds, to expand all its minute veſſels, tho' cloſely rolled up, to enable the firſt ſhooting radicle with all its tender Fibres to penetrate deep into the earth, to puſh a [t] perpendicular ſtem directly upwards into the air, to ſpread wide its branches, and by degrees to augment every part, till the whole be grown to its natural ſize? I ſhould indeed have firſt obſerv'd, that in the Embryo-ſtate, a ſingular

[q] *Ray's* Wiſd. of God, *p.* 120, 123. *Hales*, Vol. I. p. 349, 355.
[r] *Ditto*, p. 320, &c. p. 356, &c.
[s] *Ditto*, p. 95, 107, 345, 349. *Cic.* de *Senect.* c. 15. §. 51. *Senec.* Nat. Quæſt. l. 2. c. 6.
[t] *Chambers* under *Perpendicularity*.

ſingular and providential care is taken to [y] *make the ſeed proſperous*, [x] by preparing the crude, nay, noxious juices of the earth into proper food and nouriſhment: and then bringing it in a quantity juſt ſufficient for its ſmall demands; whereas it flows afterwards more abundantly, ſo as to anſwer its greateſt wants. A demonſtration this, that the moſt ſcanty ſupplies argue no lack of bounty in the Author of Nature; but are a wiſe proviſion made on purpoſe by him, that *young Vegetables* be not kill'd with kindneſs, as *human Infants* too often are.

But as a due quantity [y] of *Heat* is no leſs requiſite than *Nouriſhment* to *vegetable Life*, Providence has contrived a gradual increaſe and decreaſe of it by a change of *Climates* and *Seaſons*. Each *Climate* opens different ſcenes of nature to our view, and has its *vegetable* productions and curioſities *peculiar* to itſelf; ſo *peculiar*, that if they be tranſplanted out of it, and you employ all the art and expence you can to *naturalize* them, by giving them the moſt hoſpitable, generous and friendly entertainment: yet they are ſtill *Exoticks*; they cannot forget their native Country, nor enjoy themſelves in a ſtate of Baniſhment from that *Sun*, which inſpired them with life, and can alone preſerve it in health and vigor. But in the ſame *Climate there is a ſeaſon* to all *Vegetables*, wherein they ſpring up, live, and die in an orderly [z] Succeſſion throughout the year; being ſo [a] fram'd, that ſome will endure and flouriſh thro' the ſtarving cold of winter, and others bear up their

[y] *Zech.* viii. 12. [x] *Hales*, Vol. I. p. 341, 354, &c.

[y] *Miſcellan. Curioſ.* Vol. I. p. 238, &c. *Fire* was in the opinion of the *Stoics* ſo uſeful and neceſſary an element, that they made it to be the *natural* cauſe of intellectual, animal, and vegetable life. *Cic.* Academ. I. 12. de Nat. Deor. I. 9. II. 10, 22. III. 14. de Fin. IV. 5. Mr. *Hales* too looks upon the *Sun*, as the *kindly natural genius of Vegetation*. Vol. I. p. 358.

[z] *Woodward*, p. 267, &c.

[a] *Hales*, Vol. I. p. 328, 348, 360, &c.

their heads, and look *green* under the [b] *burning heat* of the *Dog-days* Sun. But then conſidering all together, at how convenient a diſtance is the *Sun* [c] fixed, whilſt the *Earth* goes round it with ſuch different motions and inclinations, as to make all parts enjoy a proper ſhare of its Bleſſings in their turn, to create an uſeful variety of [d] *Seaſons*, and thereby to declare to *all Nations* the *manifold* wiſdom and goodneſs of their Creator and Governor? And whenever theſe *Seaſons* in any Climate deviate far to any extreme of hot or cold, wet and dry, [e] *Graſs*, *Herbs* and *Trees* ſoon feel the judgment of heaven, and become ſickly, fade, and die.

But in whatever *Climate*, or *Seaſon*, Seeds are ſown or planted, yet they will not come up and grow, if the *Soil* be not proper for them. How provident therefore has the Author of Nature been [f] in mixing the conſtituent parts of vegetative matter (wherein there muſt be an unconceivable variety) in ſo wiſe a manner, and in ſuch exact proportions, as that the Surface of the Earth ſhould for the moſt part be every where of ſuch a temper and compoſition, as will ſerve in all climates and ſeaſons to be a common Fund of Nouriſhment to *Vegetables* of all the different kinds, nay to furniſh the very many and different Ingredients that go to the ſupport and increaſe of the various parts of individuals in each Species? Hence it is, that thoſe *Vegetables* which are

[b] There is a wonderful proviſion for furniſhing plants within the *Tropicks* with conſtant and plentiful ſupplies of moiſture; for as the *Heat* of the *Sun* is there moſt violent, ſo its influence is the ſtronger to penetrate into the Earth, to raiſe greater quantities of moiſture from greater depths, to convey it with more force into the roots, and to carry it up from thence into all parts of the higheſt Trees. *Hales*, Vol. I. p. 64, &c. Vol. II. p. 259. *Woodward*, p. 154.

[c] *Bentley*, Serm. VIII. *Gurdon*'s B. Lect. p. 284. *Clarke*'s Serm. Vol. I. p. 284. *Cheyne*'s Princip. p. 254, &c. 262.

[d] *Gen.* viii. 22. *Cic.* de Nat. Deor. l. 2. c. 19. Minut. Fel. c. 17.

[e] *Miſcell. Curioſ.* p. 240. *Hales*, Vol. I. p. 323, 361. 2 *Eſdr.* viii. 43.

[f] *Miller*'s Dict. under *Earth*. *Miſcell. Curioſ.* Vol. I. p. 227. *Moreton*'s Nat. Hiſt. p. 29, 57. *Nieuentyt*, Cont. xx. §. 6.

are of univerſal benefit to Mankind, are fertile to a Miracle in almoſt every *Soil*. But nevertheleſs there are *peculiar*, and as it were *ſpecific Soils* to ſuit *peculiar* Plants, and to make them flouriſh [b] like a *Roſe-Plant* in *Jericho*, a *Palm-Tree* in *Engaddi*, a *Cypreſs-Tree* in *Hermon*, a *Cedar* in *Libanus*, an *Oak* in *England*, or the *Lily* in *Guernſey*. Like [c] *as the* Field *is*, *ſo* muſt *be the* Seed; and if its ingredients are not proper for it either in degree or kind, the *Root* will be *kill'd with famine*, or if a Plant *ſpring up*, it will ſoon *wither away* for lack of nouriſhment, or be ſtinted in its natural growth, or *bring no fruit to perfection*. Not but that any *Soil*, however rich and good, will become of little uſe [d] without due culture, nay, the moſt *fruitful Land* may in tract of time [e] be *turned into barrenneſs*, and will ſeldom for a long while together produce the ſame kinds of *Vegetables*. Crops [f] muſt be changed and the ground lie *fallow*, till it can recruit its natural ſtrength; [g] till the *Air* have *fertilized* it, till [h] the *Clouds* have *dropped fatneſs*, and both together have *enriched* it with a new fund of matter of the ſame kind with the firſt; unleſs the wants of men require more haſte, and their induſtry ſhall bring a plentiful quantity of proper *Manure*. And whence does that *Manure* ariſe? obſerve the *Providence* of GOD. Why? from [i] *Vegetables* themſelves; which tho' they rot and ſeem to periſh, yet the dung and compoſt they make is a legacy ſufficient for their numerous poſterity to live upon. When they have anſwered all the ends of their own being, it is better for them to be *diſſolved*, and *die* [k], that they may revive

[b] *Ecclus* xxiv. 13, 14. [c] 2 *Eſdr.* ix. 17.
[d] *Hales*, Vol. I. p. 363. [e] *Columella*, l. 2. c. 1.
[f] *Miſcell. Curioſ.* Vol. I. p. 229. [g] *Hales*, Vol. I. p. 365.
[h] *Pſalm* lxv. 9, 11. *Woodward*, p. 46, 127. *Hales*, Vol. I. p. 324. Vol. II. p. 271.
[i] *Hales*, Vol. I. p. 364, &c. *Miſcell. Cur.* p. 230. *Woodward*, p. 127. *Moreton*, Nat. Hiſt. p. 32. Whence is it that *Woods* grow and flouriſh for ages without any manure, but from the annual falling of their *leaves*, which is a never-failing ſupply of nouriſhment?
[k] *John* xii. 24.

vive in their offspring, and *bring forth much Fruit:* it is better, that their *glory* ſhould *be turned into dung*, and thus nouriſh the *Seed* they bring into the world; for to them their very *Putrefaction* is the greateſt bleſſing.

But then how myſterious is this change, and ſcarce poſſible to be wrought, if modern Philoſophy be true, but by the influence of that all-wiſe Being, who brings good out of evil? whoſe Spirit filling heaven and earth, can eaſily rule over [l] the *Chaos* of our *Atmoſphere:* and whoſe power makes it reaſonable to believe that [m] the *Life* and *Death*, the *Nutrition* and *Putrefaction* of *Vegetables* may be regular and genuine effects of it acting by different methods and degrees, even as the attracting and repelling powers, that ſeem to be in Bodies, diminiſh, or increaſe. And hence it may be, that all the order and beauty we ſee in the *Vegetable* world may ariſe, and be preſerved out of the ſame quantity of matter [n], that was originally created, and is continually circulating thro' growing and decaying *Vegetables*, whoſe [o] *Putrefaction* by a wiſe order of Providence qualifies them to riſe again in new productions; whereby the nutritive fund of nature can never be ſpent and worn out, till all the *Seeds* that were made together upon the *third* day of the Creation are at an end: or till *Water* [p] ſhall fail to riſe in *Vapours*, and to deſcend in *dew*, *rain* and *Snow*, by regular viciſſitudes, which will not be, ſo long as the *Sun* and *Sea* endure. But how all theſe things may be, and to what real Cauſes they are owing, [q] GOD only knows. Human experience and ſagacity have hitherto diſcover'd by viſible effects no more, than that

[l] *Hales*, Vol. I. p. 315.

[m] *Ditto*, p. 289. *Newton*'s Opt. p. 362, 371, 372, 375.

[n] *Cic.* de Nat. Deor. l. 2. c. 33. *Woodward*, p. 227. *Newton*'s Opt. p. 375, 376. *Hales*, Vol. I. p. 314.

[o] *Ditto*, p. 320. *Newton*'s Opt. p. 350.

[p] *Gen.* viii. 22. *Nieuentyt*, Contempl. 19. §. 69. *Woodward*, p. 48, 117, 124, &c. *Bentley*, p. 146, &c. *Hales*, Vol. I. p. 64, 358.

[q] *Newton*'s Opt. p. 350, 376. *Pemberton*'s View, p. 14, 15.

that there muſt be ſome [r] *Active Principles* in nature, tho' probably what we call ſo have no efficiency at all, but are mere *Inſtruments* or *means* whereby divine power exerts itſelf in a wonderful tho' uniform manner. Among theſe *Inſtruments* we have found of late that the [s] *Air* and [t] *Light*, or if [v] conjecture be allowed, an [w] *Æther* infinitely more *ſubtile* than theſe, are the *principal*; tho' their forces, powers, or qualities appear ſo contrary to each other, and ſo different from thoſe belonging to matter, that did not *Providence* direct, proportion, and govern, if not immediately give them; the main operations in the *vegetable* Syſtem could never, as far as we can judge, be carryed on. For how otherwiſe is it poſſible, that the *natural* Intereſts of the many jarring qualities in the [x] *Air* alone (which are likewiſe infinitely altered by *foreign* combinations and alliances) ſhould be all of them moſt exactly balanc'd and adjuſted: and that its *attracting* and *repelling* powers ſhould after violent conflicts withdraw their reſpective Claims, and leave each other by turns in peaceable poſſeſſion, and ſo conſpire, as that this *Element* ſhould in [y] *one* ſtate be the ſource of *Life* and a bond of *union* to *Vegetable* Bodies? As that its particles, tho' with the utmoſt difficulty brought together, ſhould yet afterwards in or near the points of contact [z] cohere moſt ſtrongly: tho' not ſo ſtrongly, but that in another [a] ſtate

[r] *Newton*'s Opt. p. 373---377. [s] *Hales*, Vol. I. p. 314, 316.
[t] *Ditto*, p. 327. *Newton*'s Opt. p. 349. [v] *Ditto*, p. 344, 380.
[w] The Properties or Effects of this *unknown* Medium, which is the *Hypotheſis* of Sir *Iſaac Newton*, may be ſeen in the 18th and following *Queries* of his *Opticks*, his *Princip.* p. 484. *Pemberton*, p. 376, 406.
[x] *Hales*, Vol. I. p. 312, 318. Vol. II. p. 295. Ex hôc omnis inconſtantia, tumultuſque eſt. *Senec.* Nat. Quæſt. lib 2. c. 6.
[y] *Ditto*, Vol. I. p. 148, 289, 313, &c. 318. Vol. II. p. 280, 295, &c.
[z] *Ditto*, Vol. I. p. 300. *Newton*'s Opt. 371, &c.
[a] *Hales*, Vol. I. p. 196, 289, &c. 313, &c. 318. Vol. II. p. 295, &c.

ſtate by means of fire (which conſumes the Bodies themſelves or by natural ferments which diſſolve them) they ſhould make their eſcape, and with their freedom recover the ſame properties they had loſt by their Union, and then conſtitute the ſame kind of [b] *Elaſtick Fluid* with the common air. And as there is abſolute [c] need of this to ſupply a great and conſtant waſte in the growth of *Vegetables*, ſo the author of nature has contrived, that it ſhould be freely and plentifuly [d] inſpired by them, and circulated thro' peculiar Canals: nay, that its *Treaſures* might be *inexhauſtible*, he has [e] worked up a conſiderable quantity of it in their original Compoſition, and daily produces more [f] from their diſſolution.

Theſe are ſome few of the many wonders, that are regularly and continually wrought in the *Vegetable* world; and I hope, they carry ſuch conviction along with them, that I need inſiſt no further in proving that [g] *the eyes of the Lord our God are always upon it, from the beginning of the year, even unto the end of the year:* and that the ſame infinite *Wiſdom* and *Power*, which contrived and created it, are likewiſe employed in keeping the courſe of nature in it ſteady and uniform [h] amidſt continual *Changes* and *Contrarieties*, and in making a numberleſs variety of *ferments*, *confuſion*, *corruption*, and even *death* itſelf to be ſubſervient to the *Life*, *Order*, *Harmony* and *Beauty* of the whole. But if what I have ſaid do really want weight, give me leave to call in the evidence and judgment of one, who has, I believe, as thorough an inſight into theſe matters as any man living: and he will tell us, what is the concluſion of his own great experience, even this; [i] that "the "wiſdom

[b] *Ditto*, Vol. I. p. 203, 292, 310, 316.
[c] *Ditto*, p. 156, 245. Vol. II. p. 295. *Cheyne*, p. 267.
[d] *Hales*, Vol. I. chap. 5, 6. p. 244, 358. Vol. II. p. 267.
[e] *Ditto*, Vol. I. chap. 6. p. 310, 313. [f] *Ditto*, p. 310.
[g] *Deut.* xi. 12. [h] *Newton*'s Opt. p. 351. *Arrian* in Epictet. l. 1. c. 14.
[i] *Hales*, Vol. I. p. 345. Vol. II. p. 281.

" wiſdom of the Author of Nature is demonſtrated in " giving ſuch due proportion and direction to the " *Powers* above mention'd, that they uniformly con- " cur to the production, and perfection of *Vegetables*; " whereas were ſuch powers under no guidance they " muſt neceſſarily (even now) produce a Chaos, in- " ſtead of that regular and beautiful Syſtem which we " ſee." The *Wiſdom*, *Power*, and *Providence* of GOD being thus eſtabliſhed, I proceed

III. *Thirdly*, to ſhew, That every thing therein is in *reality* what *Moſes* aſſures us GOD *ſaw* it to be GOOD. But herein I find my ſelf prevented by what I have already publiſh'd; however I cannot forbear making theſe general remarks, that if *Good* relate to GOD, and ſignify, that all things are wiſe, fit, and perfect in their kind, let the moſt inquiſitive *Atheiſt* go thro' the various ſpecies of *Vegetables*, and examine each of them, nay, every individual in each ſpecies with the moſt cenſorious ſagacity, and he will find, even himſelf being judge, that they are well, and wiſely, and wonderfully made, and [k] *ordered in number, meaſure, and weight*. Nay, ſhould there appear any ſeeming imperfection, flaw, or irregularity: yet if he will but impartially reflect upon the many marks of *reaſon, wiſdom and goodneſs* every where to be obſerv'd in inſtances he does or may underſtand, he would ſcarce doubt but the ſame perfections lay hid in thoſe he does not underſtand. [l] He would conſider that the *uſes* of *ſome* things are known to *ſome* Men, and not to *others*; that the uſes of *ſome* [m] are known *now*, that were unknown to every

[k] *Wiſd.* xi. 20. [l] *Wollaſton*, p. 82, 84.

[m] Witneſs the many diſcoveries that have been made about the *Seeds* of *Vegetables*, their *Bloom* and *Flowers*, together with the admirable *Texture* of their *Bodies*. *Motte*'s Abridgment of Philoſoph. Tranſactions, Vol. II. p. 292, 298, &c. 695. *Millar* under *Plant*, *Seed*, *Flower*, and *Generation*. *Hales*, Vol. I. p. 355. The like may be obſerv'd in all the Branches of *Natural* Philoſophy. *Pemberton*, p. 4, 11. *Cudworth*, p. 874.

every body *formerly*, and then brought as objections to the wiſdom and goodneſs of the Creator; that the *Uſes* of many may be diſcover'd hereafter; and thoſe of ſome other things may for ever remain unknown to all men, and yet be in nature, as much as thoſe diſcover'd were before their diſcovery, or are now in reſpect of them, who know them not. Upon the whole, he would conſider that the *line* of *human* underſtanding muſt of neceſſity be too ſhort to fathom the infinite depths of *divine* wiſdom; and that the perpetually growing diſcoveries of increaſing ages are ſo many reaſons to convince him that [a] *we have ſeen but a few of his works*, and that *there are yet hid greater things than theſe*, ſome of which may for ever eſcape the eyes or ſagacity of Men. He would in the mean while with truth and piety acknowledge, that his not knowing all the uſes of ſome of the works of nature is no proof of any thing but his own ignorance; he would live in expectation, that his own reſearches and improvements in philoſophy may in time remove many of his preſent difficulties: or if not, he would die in full aſſurance of FAITH, that his *Soul* ſhall not be *cut off*, and periſh, whilſt it is capable of arriving at new degrees of knowledge and virtue, but be removed into a better State, wherein he may *ſee* GOD as HE *is*, and be happily employed to all eternity *in finding him out unto perfection.*

But if *Good* relate to *Animals*, nothing certainly could be better for them in their preſent Circumſtances of being, than the *Vegetable* Creation, conſidering the various purpoſes and uſes whereunto it is ſubſervient. For [a] *all Fleſh* is literally *Graſs*, *Vegetables* being the [b] never-failing fund for their ſupport and nouriſhment. They afford Men *Bread*, and *Wine*, and *Oil*, and I may ſay, *Meat* and *Raiment*, for the *Animals* that feed

[a] *Eccluſ* xliii. 32. *Job* xxvi 14. [a] *Iſa.* xl. 6.

[b] *Gen.* i. 29, 30. *Deut.* xx. 19. *Pſal.* civ. 14, 15. *Iſai.* lv. 10. *Eccluſ* xxxix. 26. *Plinii* Nat. Hiſt. l. 12. c. 1. *Watts's* Philoſ. Eſſay IX. §. 4, 5. *Woodward*, p. 127. *Ray*, p. 213. *Xenophon* Oecon. l. 5. §. 2.

feed and clothe us live upon them. We feel the judgments of heaven that affect them; for famine muſt enſue, when [c] their *Seed* is *rotten under the clods*, when *the* harveſt *of the field is periſhed*, when *the* hay *withereth away*, *the* graſs *faileth*, *and there is no* green *thing*. They contribute very much towards all the improvements of human art and induſtry, towards building and furniſhing our dwellings: and without them it would be impoſſible for us to carry on that *Commerce* with the world, to which we owe our riches, ſtrength and glory. In ſhort, by theſe we enjoy both life and health, and have [d] *medicine to heal our ſickneſſes*.

By what a variety indeed has the GOD of *Nature* conſulted our pleaſure, as well as our neceſſities and conveniences. Luxury itſelf is almoſt wholſome and refreſhing, while we feed upon the mere products of the earth; and there is no ſenſe that we may not gratify with innocence in the uſe of them. From *Vegetables* [e] we have ſeveral inſtruments of *Muſic*, our clothing in *fine linnen*, the delicious flavours of *fruit* agreeing to every taſte, the fragrant and exhilarating odours of *flowers*, and that lively *verdure* beautifully varied with inimitable colourings, which overſpreads the face of the earth, for the comfort and delight of our eyes. What [f] pleaſure is there in all the buſy ſcenes of life, unleſs we can now and then be reliev'd from the hurry and fatigue of them by rural retirements and entertainments; where the *Vegetable* World receives us with all the ſweets and freſhneſs of air uncorrupted; which alone is often able to revive us, when paſt recovery by all the powers of *Phyſick*. We are there treated with a gay and ſmiling countenance, but without hypocriſy and deceit. "To one us'd to live "in a City, (ſays a wiſe [g] Obſerver of Mankind) the "Charms of the Country are ſo exquiſite, that the "Mind

[c] *Joel* i. 10, &c. *Iſai.* xv. 6. *Hab.* iii. 17.
[d] *Pſalm* cxlvii. 3. *Eccluſ* xxxviii. 4.
[e] 2 *Eſdras* vi. 44. [f] *Fairchild*'s City Gardener, p. 7, 8.
[g] *Spectator*, Vol. II. N° 118. *Milton*'s Par. loſt, B. IX Ver. 445.

" Mind is loſt in a certain tranſport, which raiſes us " above ordinary life," and excites higher ſenſations of true animal *pleaſure*, than can be raiſed from all the works of art. Nor is this *Pleaſure* confin'd to the Gardens of the *Rich*; ſo far from it, that they themſelves are now imitating the *Antients* [h] in their taſte, or rather following *Nature*, by making their gardens to reſemble fields and orchards, and throwing down all incloſures, that they may ſee with every common eye the natural beauties of their whole eſtate, and the bleſſings of its increaſe, when cultivated and improved by the painful labours of the honeſt husbandman; that they may ſee the *valleys ſtanding thick with corn*, the *hills* enrich'd with timber, the *orchards* in their bloom, or full of *fair* and *goodly fruit*, their *paſtures clothed* with graſs, and *arrayed* in all the *glory* of flowers, and their *fields* agreeably divided by trees and hedges; which all together do compoſe the fineſt Viſta's, Proſpects and Landſchapes; ſuch as the moſt ſkilful *Painter* faintly copies, or invents for the furniture of Palaces. And to ſpeak the truth, there are as many *Beauties*, and as great *Curioſities* growing wild in common fields, (were they but as rare) as can be collected at great expence in the beſt of gardens. The Country without much art opens into an inexpreſſible variety of ſcenes, which diverſify the face of the earth, and fill the mind with a perpetual ſucceſſion of pleaſing images, ſo that " one can hardly ever be weary of rambling from one " labyrinth of *delight* to another": or if one is, we [i] may *ſit down* with like *delight under the ſhadow* of Vegetables. And that all theſe pleaſures might not be quite loſt to thoſe, whoſe Buſineſs or Fortunes immure them to this *Metropolis*, the *Founder* of this *Lecture* thought it worth his while to contrive a *City-Garden* for them.

But

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[h] *Homeri* Odyſſ. l. 7. ver. 112, &c. *Virgil.* Georg. l. 4. ver. 127. [i] *Spectator*, Vol. VII. N° 477.

But I ought not to end this head without obſerving ſome few eminent inſtances, wherein the *wiſdom* and *goodneſs* of the divine Architect marvellouſly conſpire to render the *Vegetable* World, not only wiſe and perfect in its kind, but moſt uſeful and delightful to men. Hence it is, that he has with the moſt exquiſite art adapted our ſenſes, and the objects that ſtrike them, to each other: nay, he has given almoſt every thing about us [k] a power of raiſing agreeable Ideas in the mind, a power very foreign to the real conſtitution of things. Things would indeed make but a poor appearance to the eye, if it ſaw them *naked*; and in poſſeſſion only of the qualities eſſential to *Matter*. And why has providence added foreign ornaments to it, and endowed it with a power of producing in us imaginary qualities, that exiſt not in the objects themſelves, (ſuch as taſtes, and colours, ſounds and ſmells, heat and cold): but that *Man* might find even his ſtate of pilgrimage in this world convenient, and the difficulties of his tryals in it made tolerably eaſy, and oftentimes pleaſant by agreeable ſenſations? What a profuſion of viſionary beauty is poured out for inſtance on the *Vegetable* Creation, and with what a variety of colourings is its rough and unſightly figure diſguiſed and adorned? Had not GOD an evident reſpect [l] to *human ſight* in *this* particular, and *human ſight* a no leſs viſible reference to *that?* Thus it is with regard to the lively *Verdure*, which covers the earth, and is more [m] *deſirable* to the *eye* than any other colour. The philoſophical [n] reaſon of which is, that *Green* is in the *middle* of the natural ſeries of colours, whereof *light* is compounded; and accordingly the tone of the tender fibres of the *Retina* of the eye is [o] adapted to the ſtrength, or degree of the vibra-

[k] *Locke*'s Eſſay, B. II. chap. 8. Chap. 23. §. 11, 12. *Newton*'s Opt. p 108. *Ipectator*, Vol. V. N° 387. Vol. VI. N° 413.

[l] *Arrian*'s reaſonings are very juſt upon this ſubject in his diſcourſe of *Providence*. In *Epictet.* cap 6.

[m] *Eccluſ* xl. 22.

[n] *Newton*'s Opt. p. 41, 65, 231.

[o] *Ditto*, p. 12, 319, 320, 328.

vibrations of middle-colour *Green*; whereas had the tone of thoſe fibres been adapted to the *ſtrongeſt* Colour *Red*, then the weakeſt which is violet would have made no ſenſible impreſſion: or had it been adapted to the *weakeſt*, then the impreſſions made by the *ſtrongeſt* would have been too violent, nay, injurious to the *Eye?* As the fact is ſo, did not He, who is the *Father* of *light*, who *formed* the *Eye*, and maketh the *green* graſs to grow, foreſee all this, and with the greateſt accuracy adjuſt thoſe proportions, from whence a harmony and diſcord of colours proceeds, and in much wiſdom and goodneſs contrive ſo wonderful a *relation* and *fitneſs* between the *works* of his hands? And is it not from the very ſame cauſe, that thoſe *Flowers* and *Bloſſoms* which are moſt beautiful in their *Colour*, and moſt perfuming in their *ſmell*, and thoſe *Fruits* which have the richeſt *taſte*, and thoſe *Seeds* by which the ſeveral *Families* of *Vegetables* are propagated, are well ſtored with a [p] high ſublimed *Oil*, which occaſions theſe *Colours*, *Smells* and *Taſtes*, and is at the ſame time abſolutely neceſſary to preſerve the *Seeds*, and promote their future vegetation?

But I go too far — I doubt beyond your patience: and yet I am afraid of being cenſur'd as too *luxuriant* in my ſpeculations, unleſs I ſhew the *good fruit* of them in one or two practical Inferences.

I. *Firſt.* If ſo many marks of *divine* wiſdom, power and goodneſs are to be found in the *vegetable* world, it cannot but be worth our while; [q] it is a diverſion and ſtudy excellently adapted to human nature, nay, it is our duty, as we have opportunity to trace out the moſt ſecret and intricate operations of GOD herein unto *perfection*, before this part of the Creation be *diſſolved, and the Earth and the Works that are therein be burnt up.*

[p] *Hales*, Vol. I. p. 320, 326, 327.

[q] *Tull.* de Senect. cap. 15, 16. *Xenophont.* Oeconom. cap. 5. §. 11. c. 15. §. 4.

up. To exerciſe, and to entertain our *Senſes* only [r] is to live, and uſe it like *Brutes*; whereas we may here find a fit employment for our *Reaſon*, that glorious and diſtinguiſhing faculty, as well as for our *Senſes* and *Imagination*. For our wiſe and good Creator [s] has ſo ſuited even our preſent condition to a *rational* Mind, as that all his *viſible* Works, before we we enquire into their *inward parts*, ſtrike us with the moſt lively Ideas of beauty and magnificence, and force us to own his *eternal Power and Godhead*; thus encouraging us likewiſe to hope, that his *inviſible* Works will do the like, and that all our pains to get an inſight into the real nature and properties of things will be abundantly recompenſed by the value and pleaſure of new diſcoveries [t], the ſubject whereof is inexhauſtible. This was the *Work* [v] which GOD gave our *firſt Parents* to do in their primitive, innocent, and moſt happy ſtate. The *Patriarchs* all copied their Example: and *Solomon*, the *wiſeſt* of men, [w] fought out the *diverſities* and *virtues* of *plants*, till he could *ſpeak* and *write* of *Trees*, from the *Cedar* in *Lebanon* to the *Hyſſop* that *ſpringeth out of the wall*. The [x] Arts of *Agriculture* and *Gardening* have been honourable in all parts and ages of the

[r] The ſentiments of a *Heathen Philoſopher* on this point are worth knowing; and that I may do him juſtice, I have tranſcribed them in the *Original* Language. Ἀλλ' ὅτι χρῆσις, καὶ ἄλλο παρακολούθησις. Ἐκείνοις [viz. ζώοις ἀλόγοις] μὲν ἀρκεῖ τὸ ἐσθίειν, καὶ πίνειν, καὶ ἀναπαύεσθαι, καὶ ὀχεύειν, καὶ τἄλλα, ὅσ' ὄπτιλεῖ αὐτῶν ἕκαστον· Ἡμῖν δ' οἷς καὶ τὸ παρακολουθητικὸν δύναμιν ἔδωκεν, ὑκὲρ ταῦτ' ἐπαρκεῖ.—— Τὸν Ἄνθρωπὸν ΘΕΑΤΗΝ εἰσήγαγεν ἄυτὸς τις, καὶ τὸ ἔργον τὸ αὐτοῦ· καὶ ὐ μόνον ΘΕΑΤΗΝ, ἀλλὰ καὶ ΕΞΗΓΗΤΗΝ αὐτῶν. Διὰ τοῦτο αἰσχρὸν ὅτι πρὸ ἀνθρώπῳ ἄρχεσθαι καὶ καταλήγειν ὅπου καὶ τὰ ἄλογα· ἀλλὰ μᾶλλον ἔνθεν μὲν ἄρχεσθαι, καταλήγειν δ' ἐφ' ὃ κατέληξεν ἐφ', ἡμᾶς καὶ ἡ ΦΥΣΙΣ. Κατέληξε δ' ὅπι θεωρίαν, καὶ παρακολούθησιν, καὶ σύμφωνον διεξαγωγὴν τῇ ΦΥΣΕΙ. Ὁρᾶτε ἓν μὴ ΑΘΕΑΤΟΙ τούτων ἀποθάνητε. *Arrian.* in Epict. l. 1. c. 6.

[s] *Pemberton*, p. 3, 12.

[t] *Hales*, Vol. I. p. 317, 360. *Fairchild*, p. 68.

[v] *Gen.* ii. 15. [w] *Wiſd.* vii. 20. 1 *Kings* iv. 33.

[x] *Cic.* de Senect. cap. 16, 17. *Xenophont.* Oeconom. c. 4. §. 8, 14, &c. *Columella*, l. 1. *Præfat.* *Millar's* Dict. *Pref.* p. 9.

the world. And it is one *good* ſign in theſe *bad* days to ſee them flouriſhing and improving; to ſee *natural Philoſophy* in high repute; to ſee our *Princes*, our *Nobles*, and the *Rich* among us, converſant therein, and employing their thoughts and wealth in deſigning and [y] *making gardens and orchards*, in *planting* them with *all kinds of fruit*, in laying out *Walks*, cutting *Avenues*, and opening *Viſtas*, and *fertilizing* their Lands, till the *Country* around them, that was *barren* and *deſolate*, becomes [z] like the *Garden* of *Eden*, yielding whatever is [a] *pleaſant to the ſight*, and *good for food*. And as if their *native Climate* was too ſcanty of materials to ſatisfy their knowledge and curioſity, they fetch home *exotic* Plants, and ſpare neither coſt nor pains to make them live, thrive, and flouriſh. How innocent, how beneficial, are ſuch employments? nay, how far exceeding theirs, even in *pleaſure* [b]? whoſe *Paſſions* fire them to *turn the world upſide down*; or whoſe *Luſts* inflame them into *gaming*, *revelling*, *rioting*, *drunkenneſs*, and to *give themſelves over to laſciviouſneſs*.

As to ſuch Perſons, whoſe livelihood depends upon their Commerce with the *Vegetable* World, and who *eat their bread in the ſweat of their brows*, whilſt they are cultivating the ground, manuring, planting and cropping it, and afterwards [c] pruning it to reduce all the wild luxuriances of nature into form, and order, and fertility; how may they be [d] *comforted*, *refreſhed*, and *delighted* in *the work and toil of* their *hands*? whilſt their appetite grows the better, their health and ſtrength become more vigorous, their ſleep more ſweet, and their care, induſtry and expence are compenſated by the plentiful increaſe of an *hundred-fold*. But what is above all this, their *Mind* will be ſerene, and may be enlarged

[y] *Eccleſ.* ii. 5.
[z] *Ezek.* xxxvi. 35.
[a] *Gen.* ii. 9.
[b] *Columella* in *Præfat.*
[c] *John* xv. 2.
[d] *Gen.* v. 29. *Cic.* de *Senect.* c. 15, 16. de *Offic.* l. 1. c. 42. *Xenophont.* Oeconom. c. 5. §. 11. c. 15. §. 4. *Fairchild*, p. 9.

larged and entertain'd, as well as the wiſeſt Philoſopher's; whilſt they are daily adding to their knowledge by new diſcoveries and improvements: and whilſt they ſee with ſurpriſing pleaſure, and, as I hope, with devout admiration, the *works* of the *Lord*, and the *wonders* of his *Providence*, continually riſing to their view and meditation, which, in the good judgment of the *Founder* of this *Lecture*, "is the greateſt happineſs." But this leads me to a

II. *Second* inference. If the *Earth* be *full* of the *goodneſs* and *riches* of GOD, ſo that [c] *the deſire of every living thing is ſatisfied*; the natural return thoſe reaſonable Creatures ſhould make, (for whoſe uſe and pleaſure *all* theſe things are and were created) is [f] *religious* adoration, thankſgiving, and obedience. And indeed how is it poſſible for ſuch, who are as it were every day *Eye-witneſſes* of the *Work* of *Creation* mentioned in my *Text*, not to be ſtruck with wonder at the *wiſdom* and *power* of the great *Creator*, or not to expreſs their thoughts in [g] *words* and *acts* of adoration; acknowledging, [h] that *neither is* He *that* planteth *any thing*,

[c] *Pſal.* cxlv. 16.

[f] Itaque naturæ majeſtatem propius jam licet intueri, & dulciſſimâ contemplatione frui: Conditorem vero ac Dominum univerſorum impenſius colere & venerari, qui fructus eſt Philoſophiæ multo uberrimus. *Coteſ.* Præf. *Newtoni* Princip. *Newton*'s Opt. p. 381, 382. *Arrian.* in *Epictet.* l. 1. c. 6.

[g] *Hales*, Vol. I. p. 318. Every *Chriſtian* Village, one would think, ſhould be altogether *ſuch* (as St. *Jerome* tells us, *Bethlehem* was in his days) where one might every-where hear the *Ploughman*, the *Reaper*, the *Vine-dreſſer*, and the *Shepherd* entertaining themſelves with *Pſalms*, and *Hymns*, and *Spiritual Songs*, *ſinging and making melody* with their *lips*, as well as in their *hearts* to the LORD, (*Epheſ.* v. 19.) In *Chriſti* villulâ tota ruſticitas, & extra *Pſalmos* ſilentium eſt. Quocunque te verteris, *Arator* ſtivam tenens *alleluia* decantat. Sudans *Meſſor Pſalmis* ſe avocat, & curvâ attondens vitem falce *Vinitor* aliquid *Davidicum* canit. Hæc ſunt in hâc provinciâ *Carmina*; hæ, ut vulgo dicitur, *amatoriæ cantiones*. Hic *Paſtorum* ſibilus: hæc arma Culturæ. *Paulæ & Euſtoch.* Epiſt. ad *Marcellam.*

[h] 1 *Cor.* iii. 7. 2 *Cor.* ix. 10. *Deut.* xxxiii. 13, &c.

thing, *neither* He *that* watereth; *but* GOD, who firſt created the *Seed*, ſtill maketh it to *grow*, and giveth its *increaſe?* How is it poſſible for Men, who have every ſenſe gratified by the *Vegetable* Creation, and enjoy all the *pleaſures* and the *fruits* of it, not to have within themſelves ſuch diſpoſitions of mind, as in the reaſon of things they ought to have towards their daily *Preſerver* and *Benefactor?* How is it poſſible for them to have a *due ſenſe* of all his *Mercies*, and to receive his *Bleſſings*,[h] without paying him the ſmall, natural, and pleaſant tribute of a *grateful* heart: or without ſhewing forth his *praiſe*, not only with their *lips*, but in their *lives*, by giving themſelves up to his *ſervice?* For as the *material* world in all its operations acts conformably to thoſe properties and powers that were eſtabliſh'd by the *Creator* of it in the beginning: and as its *motions*, however various or contrary to each other, are all of them ſubſervient to the direction and government of his *providence*; ſo REASONABLE Creatures ought moſt certainly to do the like, and MEN are of all others moſt inexcuſable, if they do it not.—For to them GOD hath given[i] the *Dominion* of this *Earth*.—To them HE ſpeaks this duty *originally* by the *light* of *nature*, by the *voice* of *reaſon*, by the *order* and *proportion* of things both in the *natural* and *moral* world, by frequent *revelations* of his *Will*, and at laſt, by the *Goſpel* of his *beloved* SON; whom if we do not[k] *receive*, *reverence*, and *obey*, *reſiſting* likewiſe his *Holy Spirit*: HE may then take up the ſame *Parable* againſt us, which he ſpake to the *Jews* by his Prophet *Iſaiah Chap.* v. *My* well-beloved *hath a* vine-yard *in a very* fruitful *hill. And he* fenced *it, and gathered out the* Stones *thereof, and* planted *it with the* choiceſt vine, *and built a* Tower *in the midſt of it, and likewiſe made a* wine-preſs *therein: And he looked, that it ſhould bring forth* grapes, *and it brought forth* wild grapes. *And now, O* in-

[h] *Job* xxxvi. 24, 25. *Spectat.* Vol. V. N° 393. Vol. VI. N° 453.

[i] *Gen.* i. 28, 29. *Pſalm* viii.

[k] *Matth.* xxi. 33, &c. *John* i. 11. *Acts* vii. 51.

O inhabitants *of the* Earth, *judge, I pray you betwixt* me *and my* Vineyard. *What could have been done* more *to my* Vineyard, *that I have not done in it? Wherefore when I looked that it ſhould bring forth* grapes, *brought it forth* wild grapes? *And now go to; I will tell you what I will do to my* Vineyard; *I will take away the* hedge *thereof, and it ſhall be* eaten up: *and* break down *the* wall *thereof, and it ſhall be* trodden down; *and I will* lay *it* waſte: *it ſhall* not *be* pruned, *nor* digged, *but there ſhall come up* briars *and* thorns. *I will alſo command the* clouds, *that they* rain *no* rain *upon it.*

Theſe, my BRETHREN, are the puniſhments, which GOD in juſtice [m] threatens to inflict in this world upon ſuch men, as are here *figur'd* by an *unfruitful* VINEYARD: and no doubt the whole *Vegetable* Creation will riſe up in [n] *judgment* againſt us on the day of his SON's *coming* to *receive our fruits*, and will *condemn* us [o] to be *hewn down, and caſt into the fire*; if under all theſe *natural* and *providential* advantages we do not [p] *break up* our *fallow ground*: or if, when it is thus *enriched in every thing to* all *plenteouſneſs*, it prove *barren*, unfruitful, or bring forth *evil* or *wild* fruit. But if we now [q] *abound more and more in knowledge, and in all judgment, and in the fruits of righteouſneſs, which are* by JESUS CHRIST unto the praiſe and glory of GOD, WE ſhall then [r] be *like* Trees *planted by the rivers of* water, *proſpering* and *flouriſhing* in this world: and when we die, WE ſhall be *tranſplanted* into a *better* Soil, and a *happier* Climate, WE ſhall be [s] *Bleſſed*, and receive a *right* to eat for ever of the *Tree* of *Life*, which is in the midſt of the *Paradiſe* of GOD.

[m] *Jer.* xi. 17. *Gal.* vi. 7, 8. [n] Ecclus xxvii. 6.
[o] *Heb.* vi. 7, 8. *John* xv. 2. *Matth.* iii. 10. vii. 19. *Luke* xiii. 7, 9. *Dan.* iv. 14. [p] *Hoſ.* x. 12.
[q] *John* xv. 16. *Philip.* i. 9, 11. *Col.* i. 10.
[r] *Jer.* xvii. 8. *Pſalm* i. 3. [s] *Rev.* ii. 7. xxii. 14. *John* iv. 36. *Prov.* xi. 30. *Wiſd.* iii. 15.

F I N I S.

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All written by the Right Reverend Father in God, Thomas *Lord Biſhop of* Bangor.